Mill Creek TMDL Implementation Plan Narrative
Wilcox County, Georgia

Introduction

Mill Creek has been listed as an impaired water body on the State of Georgia's 303(d) list of impaired waters. Because of the recent drought, Mill Creek has become an intermittent stream. The lack of consistent water flow and the resultant high water temperatures of remaining pools of stagnant water has no doubt contributed to water quality problems, especially lower dissolved oxygen. Locals note numerous large beaver dams throughout the creek that aggravate the problems of low flow and stagnant water. There are also many local concerns about a fertilizer plant along Mill Creek near Rochelle adjacent to U.S. 280, and its runoff. The site has apparently had a number of chemical/fertilizer concerns operate there. This site does warrant investigation for the soil and water contamination as it is obvious adjacent trees have died for some reason. While there is a general understanding and willingness to help improve water quality, these local concerns over the true nature of the water quality issues in Mill Creek will have to be addressed to obtain acceptance and support of the TMDL Implementation Plan. The TMDL Implementation Plan concentrates on educating the public about non-point sources of water pollution and encouraging the use of best management practices at the agriculture, forestry, and urban and residential levels. Also, where appropriate, the TMDL Implementation Plan encourages the investigation of possible point sources of pollution to alleviate related local concerns. Reduction of oxygen depleting materials entering Mill Creek by 25% will make for better water quality regardless. A more involved and in-depth monitoring program can also help better define the issues and resolve any local concerns.

Background and Purpose

Mill Creek, lying in Wilcox County, is in the Upper Suwannee River Basin and eventually flows into the Alapaha River along the Turner and Ben Hill County lines. Known to many local residents as Reynolds Creek, Mill Creek derives its name from an old mill pond that lies along the stream. A 3-mile segment with headwaters just west of the City of Rochelle is currently listed on the 303(d) list in the State of Georgia for violating the water quality standard for dissolved oxygen.

Adequate dissolved oxygen in water, which derives from direct absorption from surrounding air, from aeration, and from plant photosynthesis, is necessary for good water quality, and to provide for aquatic life. It is an excellent indicator of the health of a water ecosystem. Organic material such as animal wastes, fertilizer, plants, and other wastes, which enter a body of water cause algae growth, that tends to lower oxygen levels as it dies and decomposes. The amount of oxygen that dissolves in water is also limited by water temperature. The warmer the water, the lower the amount of dissolved oxygen it can hold.

Oxygen is essential for fish, invertebrate, plant and aerobic bacteria respiration. Dissolved oxygen levels below 3 ppm are harmful to most aquatic life.

The U.S. Clean Water Act requires a TMDL, or Total Maximum Daily Load, to be established for each pollutant in every body of water on the 303(d) list. A TMDL is a calculation of the maximum amount of pollutant, from both point and non-point sources, that a water body can receive and still adhere to the minimum water quality standard developed by the State of Georgia. The United States Department of Interior-Geological Survey (USGS) and the Georgia Environmental Protection Division (GAEPD) gathered samples from the creek beginning in January of 1998 through December of 1998. In a report given on February 21, 1999, the dissolved oxygen level for 1998 was not in compliance with the minimum water quality standard, that being a daily average of 5.0mg/l and no less than 4.0mg/l at all times for waters supporting warm water species of fish that are state regulated. In 2000, a 3-mile segment of Mill Creek was placed on the 303(d) list.

The purpose of this implementation plan is to identify the actions that must be taken in the future to raise the level of dissolved oxygen in the creek by reducing the amount of oxygen-hindering materials entering the stream by 25% by 2012. This should improve the water quality and better enable Mill Creek to meet the state water quality standard.

Plan Preparation

The implementation plan was developed by the Heart of Georgia Altamaha RDC with the assistance of a watershed committee comprised of stakeholder representatives from the forestry industry, agriculture, the Georgia Forestry Commission, the Ocmulgee Soil and Water Conservation Committee, Cooperative Extension Service, the Pine Country R C & D, the NRCS, a river activist group, the Department of Human Resources South Central Health District, Wilcox County Commission, mayors of three local towns, and the local president of Farm Bureau. The Heart of Georgia Altamaha RDC was in charge of drafting the plan under a contract signed with the GA EPD to prepare a TMDL Implementation Plan. A preliminary copy of the plan and planning process was discussed and a presentation was given at the initial watershed committee meeting on November 21, 2002 at the Rochelle City Council Chambers. Along with the watershed committee, landowners with 500 acres or more of property within two miles of either side of the creek were invited to attend this initial committee meeting to give comments.

A meeting to educate the public and receive further stakeholder input by discussing and reviewing the draft plan took place with a presentation at the Wilcox County Library in Abbeville, GA on December 10, 2002. At this meeting, any landowners who owned 25 acres or more of property within two miles of the creek were sent a letter informing and inviting them to the public meeting. Thirteen persons attended this meeting. Public comments were solicited and

input was placed into the plan. The plan addresses the steps that will be taken in the future to improve the water quality standard. The plan provides for monitoring and implementation actions to achieve goals submitted on the TMDL. A draft of the final plan was mailed to the watershed stakeholder committee on December 11, 2002, for solicitation of comments before final submittal to EPD.

TMDL Data and Potential Sources of Pollution

In January 1998, the USGS and the GAEPD began a follow-up sampling and monitoring study as a part of a five-year River Basin Planning cycle (Georgia EPD). The data was gathered on a monthly basis through December 1998. Eighteen measurements were taken during the course of the year in Mill Creek at State Route 112 (USGS ID No. 02315685). The minimum level of dissolved oxygen measured was 0.9 (mg/L). The maximum level of dissolved oxygen measured was 11.8 (mg/L). The mean of the eighteen measurements was 4.4 (mg/L). These measurements were recorded and, as a result of the data, Mill Creek was placed on the State of Georgia's 2000 303(d) list as a water body that did not meet the State of Georgia's standards.

The Mill Creek watershed consists primarily of cropland and forest, with minimal areas of pasture and wetlands. Of the 12,744 acres that make up the impaired segment, 43 percent is comprised of cropland. Another one-third (33 percent) is forest. Urban non-point sources were identified by EPD as a possible primary source of the dissolved oxygen problem. One of the sources is the general storm water runoff that originates from the City of Rochelle. This is the runoff from construction, streets, and residential areas that results from rainfall. There are two point sources with NPDES permits that contribute to the problem of dissolved oxygen in Mill Creek. The Northwest WPCP (#GA0024244) and the Southwest WPCP (#GA0024236), located near the City of Rochelle, are both sources that flow into a tributary of Mill Creek.

Mill Creek was once known to many for its lush, natural vegetation along the creek bed. Much of the area along the stream was formerly home to an abundant source of timberland. However, locals report that this pristine natural state is no more. As mentioned in the introduction, the erection by beavers of large dams has been a continuous problem. This has led to a significant reduction in the amount of timber located along the stream. In addition, the presence of the beavers also raises the possibility of an additional contributor of non-point source pollution. Mill Creek has a well-known reputation among locals as being an intermittent stream throughout most of the year. The beaver dams tend to aggravate the situation by further restricting the stream's ability to flow.

In addition to the problem with beaver dams, some residents believe that an even more serious problem may have contributed to the loss of vegetation along the stream. A fertilizer plant and/or former chemical plant are located near Mill Creek

along US 280 just west of Rochelle. Adjacent to the plant is Rochelle's industrial park. One local resident states that the area where the stream crosses under US 280 resembles a "war zone." Large quantities of algae are currently present within this area of the stream. There is no vegetation or tree life of any kind present at this location. More than a few locals believe that this is possibly the result of soil contamination from the nearby plant(s) or some other source, and that this is the source of Mill Creek's water quality problems. While it is not known conclusively that the plant(s) is directly contributing to the problems present along the stream, it does signify a potential point source(s) of pollution that warrants further study. The desire for such a study has been expressed by a number of residents. However, there has been a general lack knowledge as to how to raise awareness of the perceived problem to the appropriate authority. The substantial presence of algae is the direct result of a lack of dissolved oxygen, and direct attention is needed to address the situation. This has likely contributed to the problem of dissolved oxygen that was cited at the USGS monitoring station at SR 112 in its 1998 sampling. The locals believe if the sampling had taken place at U.S. 280, the dissolved oxygen levels would have been even lower than those found at S.R. 112.

Regulatory and Voluntary Measures: Existing and Future

Septic tank ordinances are an effective way to curtail urban and residential runoff. In Wilcox County, such ordinances are not in effect, although septic tank installations are regulated. It is important that future septic tank regulations, particularly relating to post-construction maintenance, be implemented at the local level. Future use of residential BMPs should also be explored as a practical means of limiting residential runoff. The local Cooperative Extension office can help individual homeowners assess and utilize BMPs through its Home*A*Syst Program.

Public education measures, beginning with the TMDL Implementation Plans and continuing in the future concerning Best Management Practices, are an efficient way to reach the local citizenry. Agriculture BMPs include, but are not limited to, the use of a waste storage structure, conservation tillage, waste storage pond, diversion, fencing, filter strips, stock trails/walkways, stream/shoreline protection, nutrient management, and well protection. The beavers have contributed to the problem by killing the natural filter strips of trees along the creek. Farmers utilize some of the agriculture BMPs currently; however, many do not practice them, and some do not know how to define a BMP. The NRCS and the Pine Country RC&D continue to work with farmers by educating them and providing them with the proper resources/information to enable them to install current and future BMPs. Cooperative Extension can also provide individually tailored assistance with BMPs through its Farm*A*Syst Program.

The use of forestry BMPs are becoming more prevalent, however, some foresters continue to ignore forestry BMPs. The Georgia Forestry Commission has and continues to make a conscious effort to educate and monitor BMPs by

aerial surveillance. Some forestry BMP categories include, but are not limited to, harvesting in SMZ's, mechanical site preparation, chemical site preparation, fertilization, firebreaks, skid trail stream crossings and road crossings, and logging roads. The State Implementation Committee of the forest industry's Sustainable Forestry Initiative can lend valuable support/assistance.

The City of Rochelle currently does not have planning and zoning regulations within the city limits. Wilcox County currently does not have any planning and zoning regulations in the unincorporated areas as well. Wilcox County enforces erosion and sedimentation control measures at the state level. However, there are no erosion and sedimentation measures enforced at the local level.

The implementation of Land Use Management Regulations is planned in the future on a county-by-county basis. The regulations will be put into place as the necessary support at the local level is obtained. They will be enforced by local governments, GA DNR, GA Department of Human Resources, GA Department of Community Affairs, and the GA Forestry Commission. The regulations would utilize state-mandated environmental planning criteria, local planning and zoning ordinances, BMPs for agriculture and forestry, erosion and sedimentation measures, and septic tank permitting to manage runoff and development. The Heart of Georgia Altamaha RDC will provide technical assistance in developing a "zoning lite" ordinance to encourage local governments to implement planning and zoning measures.

Storm Water Management Regulations are planned for implementation in the future as well on a county-by-county basis. The new regulations will be put into effect as requisite local support is obtained, and the GA DNR, GA EPD, and local governments will enforce them. The regulations would utilize local ordinance enforcement to produce better erosion and sedimentation control at the time of construction. These regulations could possibly require post-construction erosion and sedimentation control and possibly utilize passive design elements in new developments and stream buffers to prevent runoff.

A Cooperative Monitoring Program is needed for future implementation. The GA DNR, GA EPD, local governments, and possibly local volunteers would conduct the program. Additional regular monitoring of Mill Creek is needed to better define pollutant sources. The potential point source at U.S. 280 needs to be investigated as well. The program could also consist of a scientific study of issues such as natural dissolved oxygen levels in slow-moving blackwater streams. It also could possibly seek funding and cooperation for watershed assessments, including possible model demonstration assessments for small watersheds, and develop a program for implementation assessments for Mill Creek.

An implementation of an Adopt-A-Stream program is needed. The program would be utilized through various organizations and groups throughout the

watershed. The program will provide updates on current stream conditions in the future as the requisite funding and support are developed.

Schedule for Implementation
BMPs for the agriculture and forestry community will be promoted beginning in 2002 and continuing. The schedule for implementing the Land Use Management Regulations and the Storm Water Management Regulations is on a county-by-county basis in the near future, as local support is obtained. It would be helpful if the Cooperative Monitoring Program could be implemented in 2003 pending funding. An Adopt-A-Stream Program would also be helpful if implemented by 2004, pending local support and funding.

Monitoring Plan
The GA Forestry Commission will continue to do aerial and land surveillance of the watershed area. Adopt-A-Stream monitoring will begin to take place in the future, as the requisite funding and support are developed.

Funding
The GA Forestry Commission will continue to do aerial and land surveillance of the watershed area. The U.S. Fish and Wildlife Service is funding a program called “Partners for Wildlife,” which is sponsored through the GA Soil and Conservation Service. Also, some funding will originate from the USDA through the Farm Service Agency and the Natural Resource Conservation Service. The UGA Cooperative Extension Service is funding two programs; Home*A*Syst and Farm*A*Syst, which are enacted by the local agriculture extension agent offices. Finally, the State Implementation Committee (SFI) is funding a program called “Sustainable Forestry Initiative.” Additional funding is likely needed to establish more in-depth monitoring.

Criteria to Determine Progress
The criteria to determine whether progress toward attainment is being made will be shown through the results of future monitoring, any improved dissolved oxygen levels and lessening of oxygen depleting materials entering Mill Creek.

Conclusion
Improved future utilization and implementation of best management practices at the agricultural, forestry, and urban levels will provide substantial progress in raising the level of dissolved oxygen in Mill Creek. An examination of a potential point source(s) would help to determine if a problem exists from that concern, and to what extent such a problem may exist. Any action(s) taken as a result of such an examination would further assist in producing progress toward raising the dissolved oxygen level. We anticipate the removal of Mill Creek from the State of Georgia’s 303(d) list.

STATE OF GEORGIA

TMDL IMPLEMENTATION PLAN
WATERSHED APPROACH
Suwanee River Basin

Local Watershed Governments
Heart of Georgia-Altamaha RDC
Wilcox County
City of Rochelle

TMDL Implementation Plans are platforms for establishing a course of actions to restore the quality of impaired water bodies in a watershed. They are intended as a continuing process that may be revised as new conditions and information warrant. Procedures will be developed to track and evaluate the implementation of the management practices and activities identified in the plans. Once restored, appropriate management practices and activities will be continued to maintain the water bodies.

With input from appropriate stakeholder groups, a TMDL Implementation Plan has been developed for a cluster of impaired streams and the corresponding pollutants. The impaired streams are located in the same sub-basin identified by a HUC10 code (Figure 1).

This Implementation Plan addresses an action plan, education/outreach activities, stakeholders, pollutant sources, and potential funding sources affecting the sub-basin. In addition, the Plan describes (a) regulatory and voluntary practices/control actions (*management measures*) to reduce target pollutants, (b) milestone schedules to show the development of the management measures (*measurable milestones*), (c) a monitoring plan to determine the efficiency of the management measures and measurable milestones, and (d) criteria to determine whether substantial progress is being made towards reducing pollutants in impaired waterbodies. The overall goal of the Plan is to define a set of actions that will help achieve water quality standards in the state of Georgia. Following this section is information regarding individual segments.

Mill Creek/Alapaha RiverWatershed
0311020201

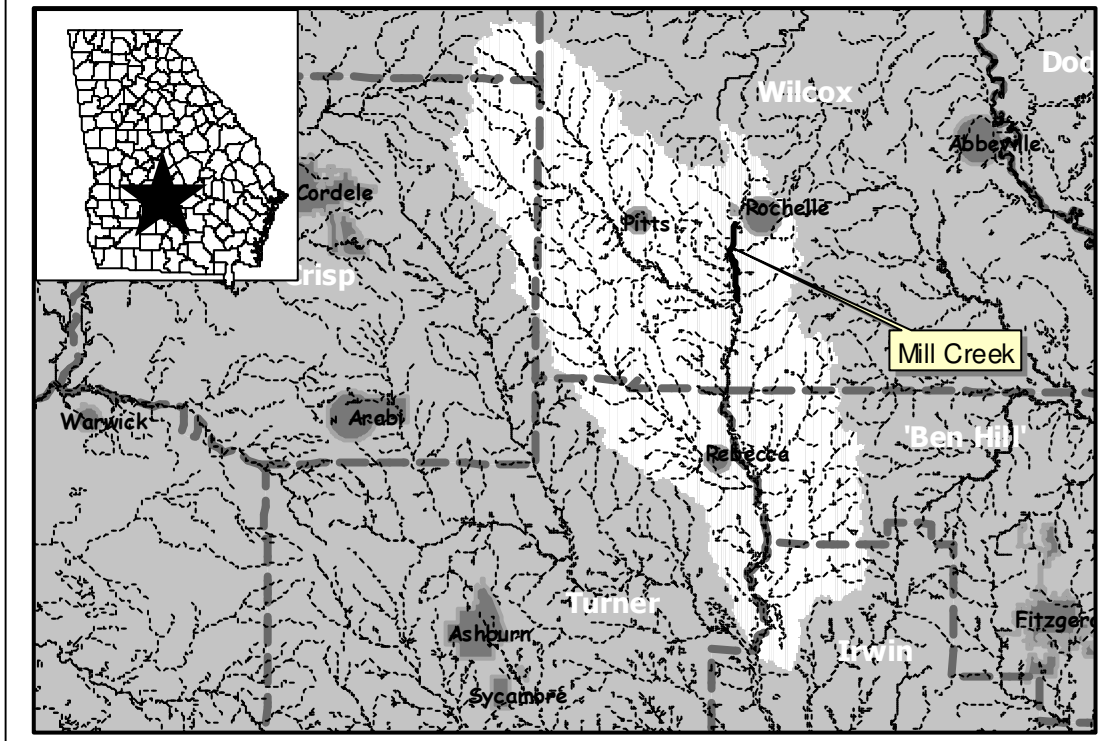


FIGURE 1

Impaired Waterbody*	Impaired Stream Location	Impairment
1. Mill Creek	Reynolds Creek to Alapaha River	Dissolved Oxygen

*These Waterbody Numbers are referenced throughout the Implementation Plan.

Action Plan for Mill Creek

Mill Creek/Alapaha River Watershed
0311020201

POLLUTANT:	SOURCE:	EFFECT:	WHAT CAN I DO?	
			At Home: Community, School	At Work: Business, Government
X Dissolved Oxygen (DO) __ Fecal Coliform (FC) __ Sediment __ Metals __ Fish Consumption Guidelines (FCG) __ Other (Please List)	X Industrial X Urban X Agriculture X Forestry __ Residential __ Other (Please List)	__ Habitat __ Recreation __ Drinking Water __ Aesthetics X Other (Please List) Fishing	Get Involved in Adopt-A-Stream Public Education Use Proper BMPs Check Septic System	Develop Zoning Ordinances Dispose of Harmful Chemicals Properly

INFORMATION/EDUCATION/OUTREACH ACTIVITIES

An education/outreach component will be used to enhance public understanding of and participation in implementing the TMDL Implementation Plan.
List of all previous and planned information/education/outreach activities.

Responsible Organization Or Entity	Description	Impacted Waterbodies*	Target Audience	Anticipated Dates (MM/YY)
Heart of Georgia Altamaha RDC	TMDL Presentation at the City of Rochelle City Council Chambers for the committee and landowners	Mill Creek	Landowners with 500 Acres or more within 2 miles on either side of Mill Creek in Wilcox Co., GA and Local Governments, GA Forestry Commission, Ocmulgee Soil and Water Conservation District, Agriculture Organizations, Natural Resource Conservation Service, DHR South Central Health District, Pine Country RC & D, Forestry Industries, Altamaha RiverKeeper, Wilcox Co. Farm Bureau	November 21, 2002
Heart of Georgia Altamaha RDC	Press Release to The Cordele Dispatch	Mill Creek	General Public	December 4, 2002
Heart of Georgia Altamaha RDC	A Public Service Announcement to WQSY (103.9 FM) in Hawkinsville, GA	Mill Creek	General Public	December 6-10, 2002
Heart of Georgia Altamaha RDC	TMDL Presentation for Public Meeting at the Wilcox County Library in Abbeville, GA	Mill Creek	Landowners with 25 Acres or more within 2 miles on either side of Mill Creek in Wilcox County	December 10, 2002
Heart of Georgia Altamaha RDC	TMDL Presentation at City of Rochelle City Council Meeting	Mill Creek	City Officials	January 1, 2002*
Heart of Georgia Altamaha RDC	TMDL Presentation at Wilcox County Commissioners Meeting	Mill Creek	County Officials	January 7, 2002

*Tentative Meeting Date

STAKEHOLDERS

EPD encourages public involvement and the active participation of stakeholders in the process of improving water quality. Stakeholders can provide valuable information and data regarding their community and the impaired water bodies and can provide insight and/or implement management measures.

List of local governments, agricultural organizations or significant landholders, commercial forestry organizations, businesses and industries, and local organizations including environmental groups and individuals with a major interest in this watershed.

Name/Organization	Address	City	State	Zip	Phone	E-Mail
Georgia Forestry Commission	Rt. 1 Box 67	Helena	GA	31037	(229)-868-5649	
Ocmulgee Soil and Water Conservation District	1375 Golden Rod Road	Rochelle	GA	31079	N/A	
Wilcox County Cooperative Extension Service	PO Box 218	Rochelle	GA	31079	(229)-365-2323	
Wilcox County Commission	103 North Broad Street	Abbeville	GA	31001	(229)-467-2737	
City of Abbeville	215 South Depot Street	Abbeville	GA	31001	(229)-467-3201	
City of Rochelle	PO Box 156	Rochelle	GA	31079	(229)-365-2244	
Natural Resource Conservation Service	209B West Union Street	Vienna	GA	31092	(229)-268-9106 x 3	
City of Pineview	PO Box 127	Pineview	GA	31071	(229)-624-2422	
DHR South Central Health District	2121-B Bellevue Road	Dublin	GA	31021-2998	(912)-275-6618	
Pine Country RC & D	105 Martin Luther King Drive	Soperton	GA	30457	(912)-529-6652	
Rayonier Southeast Forest Products	PO Box 626	Jesup	GA	31598	(912)-427-5280	
Altamaha RiverKeeper	PO Box 2642	Darien	GA	31305	(912)-437-8164	
Cattleman's Association	3007 American Legion Road	Abbeville	GA	31001	N/A	
Wilcox County Farm Bureau	1982 Mathews Road	Abbeville	GA	31001	(229)-365-2228	

WATER BODIES/STREAMS COVERED IN THIS PLAN:

These impaired streams are located in the same sub-basin identified by a HUC10 code. Most of the information contained in this section comes from the 303(d) list and has been completed by employees of the EPD Water Protection Branch. Data that placed stream on 303(d) list will be provided upon request.

Waterbody Name #1	Location	Miles/Area Impacted	Use Classification	Partially Supporting/ Not Supporting (PS/NS)
Mill Creek	Reynolds Creek to Alapaha River	3	Fishing	NS

Primary County	Secondary County	Second RDC	Source (Point/ Nonpoint)
Wilcox			Nonpoint

Pollutants	Water Quality Standards	Required Reduction	TMDL ID	Date TMDL Established
Dissolved Oxygen	Natural DO = 2.35 mg/l at USGS station # 2315685	Reduce oxygen demanding materials by 25%		December 2001

POLLUTANT SOURCES    

It is important to recognize the potential source(s) causing water quality impairment. Each source must be controlled to comply with target TMDL/Load Allocations for each pollutant. Included is a description of how the sources contribute to the impairment and the waterbody that is impaired.

List of major nonpoint source categories and sub-categories or individual sources (Urban Runoff, Agriculture, Forestry, Municipal Sewage Treatment Plant)

Pollutant	Sources of Pollutants	Description of Contribution To Impairment	Impacted Waterbodies*
Dissolved Oxygen	Agriculture	Possible introduction of animal waste from upslope practices and sediment from storm water runoff when BMPs are not followed	Mill Creek
Dissolved Oxygen	Forestry	Possible introduction of sediment and plant debris resulting from timber practices when BMPs are not followed	Mill Creek
Dissolved Oxygen	Municipal (Storm water Runoff)	Possible introduction of storm water runoff from municipal areas (City of Rochelle)	Mill Creek
Dissolved Oxygen	Urban	Possible introduction of water runoff from urban development in and near Rochelle	Mill Creek
Dissolved Oxygen	Industrial	Possible introduction of point source(s) generated runoff from fertilizer plant and/or former chemical plant	Mill Creek

MANAGEMENT MEASURES, MEASURABLE MILESTONES AND SCHEDULE 

(i.e. Local codes and ordinances, Erosion and Sedimentation Control, Storm Water Management, Local water resource monitoring)

The following table lists management measures that have been or will be implemented to achieve water quality standards and the load reductions established in the TMDL. The management measures, including regulatory or voluntary actions or other controls by governments or individuals, specifically apply to the pollutant and the waterbody for which the TMDL was written. A description is provided of how these management measures are/will be accomplished through reliable and effective delivery mechanisms, and how these management measures are/will help achieve the target TMDL. Included is the source of the pollutant, anticipated/past effectiveness of the management measure (very effective, somewhat effective, not effective), the current status (i.e. enforced, in-progress, planning), and measurable milestones and schedule. Milestones are used to measure progress in attaining water quality standards and to determine whether management measures are being implemented.

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Georgia Water Quality Control Act (OCGA 12-5-20)	Georgia DNR, EPD	Makes it unlawful to discharge excessive pollutants into waters of the state in amounts harmful to public health, safety or welfare, animals, or the physical destruction of stream habitat	1964	Current	Regulatory

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Dissolved Oxygen	Agriculture, Municipal, Forestry, Industrial	Mill Creek	Effective in point source pollution in dealing with local governments and industry/ Limited effectiveness in dealing with non-point sources

Measurable Milestones	Schedule		Comments
	Start	End	
Land Use Application System Permits NPDES Permits	1964	Ongoing	Work with local governments and others to increase monitoring of Land Use Application System Permits and NPDES Permits

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Forestry Water Quality Program	Georgia Forestry Commission	Designated by EPD to lead the effort to develop BMP's, educational BMP programs, forestry complaint resolution process and BMP monitoring, conducts biennial BMP monitoring, complaint investigation and mediation	1999 Manual	Current	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Dissolved Oxygen	Preharvesting planning, road management, harvesting, forest chemical management	Mill Creek	Established BMPs Effective in limiting runoff and less effective in limiting debris associated with timber practices

Measurable Milestones	Schedule		Comments
	Start	End	
Harvesting in SMZ's, Mechanical Site Preparation, Chemical Site Preparation, Fertilization, Firebreaks, Skid Trail Stream Crossings/Road Crossings, Logging Roads	1999 Manual	Ongoing	Additional installation of BMPs possible, depending on future monitoring results

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Agricultural BMP's	Georgia Soil and Water Conservation Service, Georgia Department of Agriculture	Leads effort in agricultural water quality program, develops agricultural BMP educational and monitoring efforts	1987	Current	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Dissolved Oxygen	Pesticide management, animal facility runoff, irrigation water management	Mill Creek	Utilization of BMPs has been found to be effective in controlling runoff and other contaminants from farming practices

Measurable Milestones	Schedule		Comments
	Start	End	
Waste Storage Structure, Conservation Tillage, Waste Storage Pond, Diversion, Fencing, Field Borders, Filter Strips, Stock Trails/Walkways, Stream/Shoreline Protection, Nutrient Management, Well Protection, Land Use Application System Permits and NPDES Permits	1987	Ongoing	Additional BMPs possible depending on results of future monitoring/ Work with local governments and others to increase monitoring of Land Use Application System Permits and NPDES Permits

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Nutrient Application Plan	Natural Resource Conservation Service	Leads effort in agricultural water quality by developing plans to control nutrient runoff	2000	Current	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Dissolved Oxygen	Pesticide management, irrigation water management	Mill Creek	Effective in the initial stages of the program's beginning if plans are followed properly

Measurable Milestones	Schedule		Comments
	Start	End	
Increase the number of farming establishments utilizing nutrient application plans to limit nutrient runoff	2000	Ongoing	Plans will continue to be effective at the local level if they continue to be implemented by more and more farming establishments

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Georgia Planning Act (OCGA 12-2-8)	Georgia Department of Natural Resources and Local Governments	Authorized DCA to develop minimum planning standards and procedures that local government planning and zoning jurisdictions could adopt and enforce pertaining to the protection of river corridors, mountains, water supply watersheds, groundwater recharge areas, and wetlands	1989	Current	Regulatory

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Dissolved Oxygen	Agricultural, Municipal	Mill Creek	Effectiveness is minimal because of lack of land use management regulations at the local level

Measurable Milestones	Schedule		Comments
	Start	End	
Land Use Management Regulations	2003	Ongoing	Need to work with local governments to establish land use management regulations and other regulations as appropriate/ Need to work with local governments in enforcing DNR's Part 5 Environmental Planning criteria to better protect local streams

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Georgia Erosion and Sedimentation Control Act (OCGA 12-7-1)	Georgia Department of Natural Resources Environmental Protection Division and Local Governments	Authorizes local governments to adopt a comprehensive ordinance governing land-disturbing activities within local planning and zoning jurisdictions and require the use of BMPs	Amended 2000	Current	Regulatory

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Dissolved Oxygen	Agricultural, Industrial	Mill Creek	Effectiveness is minimal due to a lack of local enforcement of erosion and sedimentation control measures

Measurable Milestones	Schedule		Comments
	Start	End	
Local erosion and sedimentation control measures	2003	Ongoing	Work with local governments to obtain a greater enforcement of erosion and sedimentation control measures at the local level

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Land Use Management Regulations	Heart of Georgia Altamaha Regional Development Center, Local Governments, Georgia Department of Natural Resources, Georgia Department of Human Resources, Georgia Department of Community Affairs, Georgia Forestry Commission	Utilize state-mandated environmental planning criteria, local planning and zoning ordinances, BMP's for agricultural and forestry, and septic tank permitting to manage runoff and development, RDC will provide technical assistance in developing a model "zoning-lite" ordinance to encourage local governments to implement planning and zoning measures	Adopted on a County-by-County basis	Planned	Regulatory

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Dissolved Oxygen	Agricultural, Forestry,	Mill Creek	Not very effective due to lack of Land Use Regulations on county-wide level

Measurable Milestones	Schedule		Comments
	Start	End	
Establishment of County-wide Land Use Regulations	2008	Ongoing	There is a need to work with local governments to adopt Land Use Regulations

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Cooperative Monitoring Program	Georgia Department of Natural Resources, Georgia Environmental Protection Division, Local Governments, Heart of Georgia Altamaha Regional Development Center	Seek a scientific study of issues such as natural dissolved oxygen levels in slow-moving streams, could seek funding/cooperation for watershed assessments including possible model demonstration assessments for small watersheds, develop a program for implementation assessments for entire Mill Creek Watershed Cluster		Planned	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Dissolved Oxygen	Agricultural, Forestry	Mill Creek	Anticipated effectiveness is significant because of more frequent monitoring which will produce better and more frequent data

Measurable Milestones	Schedule		Comments
	Start	End	
Implementation of Adopt-A-Stream programs with various organizations for purposes of more sampling/Additional monitoring to increase the amount of data collected	2003	Ongoing	Utilize monitoring programs of Georgia Forestry Commission, NRCS, Adopt-A-Stream to gather updated sampling data on a more frequent basis

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Environmental Code Enforcement	Local Governments, Department of Natural Resources, Environmental Protection Division	Utilize local ordinances to ensure greater compliance with state environmental codes at the local level	2008	Planned	Regulatory

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Dissolved Oxygen		Mill Creek	Limited effectiveness due to lack of enforcement at county-wide level

Measurable Milestones	Schedule		Comments
	Start	End	
Establishment of code enforcement program	2008	Ongoing	Greater enforcement of state standards at the local level could help to reduce the amount of man made wastes entering into local streams

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Clean Water Act, Section 404 CFR Part 232.3 (Pine Plantation Regulations)	US EPA, Army Corps of Engineers	Requires normal forestry practices to adhere to BMPs and 15 baseline provisions for forest road construction and maintenance in and across waters of the U.S., including lakes, rivers, perennial and intermittent streams, wetlands, sloughs, and natural ponds in order to qualify for the silvicultural exemption from the permitting process	1988	Current	Regulatory

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Dissolved Oxygen	Forestry	Mill Creek	Significantly effective in controlling runoff in silviculture practices

Measurable Milestones	Schedule		Comments
	Start	End	
Installation of additional BMPs/Increase compliance with BMPs and education by Georgia Forestry Commission and industrial forestry companies	2008	Ongoing	Based on future monitoring results, additional BMPs may be required

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Federal Farm Bill	U.S. Department of Agriculture	Prohibits landowners from converting forested wetlands to agricultural uses (swamp buster)		Current	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Dissolved Oxygen	Forestry	Mill Creek	Effective in leaving forested wetlands in their natural state

Measurable Milestones	Schedule		Comments
	Start	End	
Increase number of farmers utilizing incentive programs to keep forested wetlands in their natural state	1940's	Ongoing	Legislative updates should continue to increase program incentives

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Standards of Practice (OCGA 43-1-19)	Georgia State Board of Registration for Foresters	Failure to practice professional forestry in accordance with generally accepted standards of practices (includes BMPs) shall constitute unprofessional conduct and shall be grounds for disciplinary action	1993	Current	Regulatory

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Dissolved Oxygen	Forestry	Mill Creek	Effective in ensuring professional standards of forestry practices

Measurable Milestones	Schedule		Comments
	Start	End	
Keeping professional standards updated and enforced	1993	Ongoing	Standards need to be closely monitored and continuously enforced to ensure professional conduct

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Forestry BMPs	Georgia Forestry Commission	BMP Categories include Harvesting in SMZ's, Mechanical Site Preparation, Chemical Site Preparation, Fertilization, Firebreaks, Skid Trail Stream Crossings and Road Crossings, Logging Roads	1999	Current	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Dissolved Oxygen	Forestry	Mill Creek	Somewhat Effective but could be more so with increased utilization by farming establishments

Measurable Milestones	Schedule		Comments
	Start	End	
Continuous installation of new BMPs as appropriate	1999	Ongoing	Need for monitoring of BMPs to monitor utilization and effectiveness/Need for continued and stronger industry enforcement

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Storm water Management Regulations	Georgia Department of Natural Resources, Environmental Protection Division, and Local Governments	Utilize local ordinance enforcement to produce better erosion/sedimentation control at the time of construction, could possibly require post-construction erosion/sedimentation control, could use passive design elements in new developments and stream buffers to prevent runoff	Adopted on a County-by-County basis	Planned	Regulatory

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Dissolved Oxygen	Municipal, Industrial	Mill Creek	Limited Effectiveness due to lack of erosion and sedimentation regulations

Measurable Milestones	Schedule		Comments
	Start	End	
File for NPDES general land disturbance permit/ Phase II General Industrial Permits	2003	Ongoing	ISTEA Exemption ends for all local governments in March 2003/All cities and counties will need to file Notices of Intent by this date

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory /Voluntary
NPDES (National Pollutant Discharge Elimination System) Permits	Georgia Department of Natural Resources Environmental Protection Division and Local Governments	Regulates facilities that are allowed to discharge treated wastewater into surface water	Unknown	Current	Regulatory

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Dissolved Oxygen	Rochelle-Northwest WPCP, Rochelle-Southwest WPCP	Mill Creek	Effectiveness is greater with governments and larger industries/ Less effective with smaller entities

Measurable Milestones	Schedule		Comments
	Start	End	
State monitoring and renewal	2000	Ongoing	Rochelle-Northwest WPCP Permit (#GA0024244) Rochelle-Sorthwest WPCP Permit (#GA0024236) Closer monitoring and enforcement of regulations would make the permit more effective

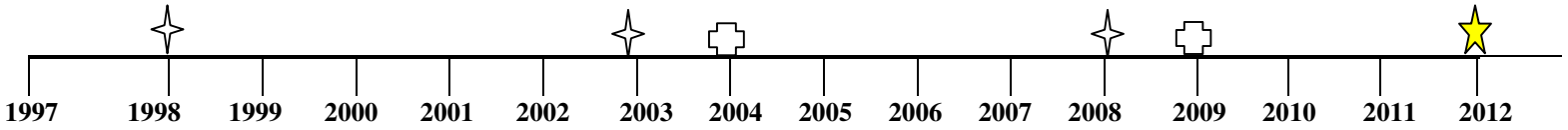
POTENTIAL FUNDING SOURCES

The identification and discussion of dedicated funding is important in determining the economic feasibility of the above-mentioned management measures.

Funding Source	Responsible Authority	Status	Anticipated Funding Amount	Impacted Waterbodies*
Georgia Forestry Commission	Georgia Forestry Commission	Current	Unknown	Mill Creek
Georgia Department of Natural Resources	Environmental Protection Division	Current	$75,000.00	Mill Creek
U.S. Environmental Protection Agency	U.S. Environmental Protection Agency	Planned	Unknown	Mill Creek
U.S. Department of Agriculture	Farm Service Agency	Planned	Unknown	Mill Creek
U.S. Department of Agriculture	Natural Resource Conservation Service	Planned	Unknown	Mill Creek
U.S. Fish and Wildlife Service	Georgia Soil and Water Conservation Service (“Partners for Wildlife” Program)	Planned	Unknown	Mill Creek
University of Georgia Extension Service	Local Cooperative Extension Service (Home*A*Syst Program)	Planned	Unknown	Mill Creek
University of Georgia Extension Service	Local Cooperative Extension Service (Farm*A*Syst Program)	Planned	Unknown	Mill Creek
State Implementation Committee	Sustainable Forestry Initiative Program	Planned	Unknown	Mill Creek

PROJECTED ATTAINMENT DATE

The projected date to attain and maintain water quality standards in this watershed is 10 years from acceptance of the TMDL Implementation Plan by EPD.



EPD Monitoring
Evaluate TMDL & Attainment Date
Project Attainment

MONITORING PLAN

The purpose of this monitoring plan is to determine the effectiveness of the target TMDL and the management measures being implemented to meet water quality standards. List of previous, current or planned/proposed sampling activities or other surveys. (Monitoring data that placed stream on 303(d) list will be provided if requested.)

Name Of Regulation / Ordinance Or Management Measure	Organization	Impacted Waterbodies*	Pollutants	Purpose/Description	Time Frame		Status (Previous, Current, Proposed)
					Start	End	
1998 Study	United States Geological Survey	Mill Creek	Dissolved Oxygen	To detect the levels of dissolved oxygen at the USGS Certified Station #02315685 (SR 112)	01/98	12/98	Previous
Best Management Practices Monitoring	Georgia Forestry Commission	Mill Creek	Dissolved Oxygen	Within the watershed, can conduct monthly aerial reconnaissance to identify recent forestry practices, conduct BMP audit, and make recommendations for remediation if problems are found		On-going	Current

Mill Creek/Alapaha River Watershed
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CRITERIA TO DETERMINE WHETHER SUBSTANTIAL PROGRESS IS BEING MADE

The following set of criteria will be used to determine whether any substantial progress is being made towards reducing pollutants in impaired waterbodies and attaining water quality standards. Discussion on each criteria is recorded in the space provided. Additional relevant criteria are presented in comments.

Percent of concentration or load change (monitoring program) Install BMPS and reduce the amount by 10% by 2008 when USGS monitors and by 20% by 2012

If monitoring results show that it is unlikely that the TMDL will be adequate to meet water quality standards, revision of the TMDL may be necessary.

- Regulatory controls or activities installed (ordinances, laws) Work with local governments and individuals to install Erosion and Sedimentation Controls, Land Use Management Regulations (Development Regulations such as stream buffers, limited impervious cover, porous pavement materials, limited clearing, grading, and disturbance); BMPs, Storm Water Management, Code Enforcement, etc. to help reduce runoff and minimize land disturbance.

- Best management practices installed (agricultural, forestry, urban) Forestry- (Harvesting in Streamside Management Zones, Mechanical Site Preparation, Chemical Site Preparation, Fertilization, Firebreaks, Skid Trail Crossing and Road Crossings, Logging Roads) Agriculture – (Waste Storage Facilities, Conservation Tillage, Waste Storage Pond, Diversion, Fencing, Field Borders, Filter Strips, Stock Trails/Walkways

- Categorical change in classification of the stream (delisting the stream is the goal) Classification is proposed to remain fishing/ Delist from 303(d) list

COMMENTS

Attachments

Appendix A – Mill Creek Watershed Proposed TMDL Implementation Plan Committee Meeting Invitation List (November 21, 2002)

Appendix B – Mill Creek Watershed Proposed TMDL Implementation Plan List of Major Landowners Invited to Committee Meeting (November 21, 2002) (Wilcox County)

Appendix C – Mill Creek Watershed Proposed TMDL Implementation Plan Committee and Major Landowners Meeting Sign-in Sheet (November 21, 2002)

Appendix D – Mill Creek Watershed Proposed TMDL Implementation Plan Committee and Major Landowners Meeting Handout (November 21, 2002)

Appendix E – Stakeholder Notification List for Mill Creek Watershed Proposed TMDL Implementation Plan Public Meeting (December 10, 2002) (Wilcox County)

Appendix F – Press Release for Public Meeting for Mill Creek Watershed Proposed TMDL Implementation Plan in The Cordele Dispatch (December 4, 2002)

Appendix G – Public Service Announcement concerning Mill Creek Watershed Proposed TMDL Implementation Plan given to WQSY-FM (103.9 in Hawkinsville, GA) (December 6-10, 2002)

Appendix H– Mill Creek Watershed Proposed TMDL Implementation Plan Public Meeting Sign-in Sheet (December 12, 2002)

Appendix I – Mill Creek Watershed Proposed TMDL Implementation Plan Public Meeting Handout (December 12, 2002)

Mill Creek/Alapaha River Watershed
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The preparation of this report was financed in part through a grant from the U.S. Environmental Protection Agency under the provisions of Section 106 of the Federal Water Pollution Control Act, as amended.

Environmental Protection Division of the Department of Natural Resources, State of Georgia.

TOGETHER WE CAN MAKE A DIFFERENCE!